

LISTING OF CLAIMS:

1. (Currently amended) An apparatus for measuring sizes of articles comprising:
 - a light projecting device for projecting light toward an article from one side of an article;
 - a photo-sensor device arranged on the other side of the article and including a plurality of photo-detectors arranged in array in a first direction such that light projected from the said light projecting device and impinging upon the photo-sensor device without being interrupted by the article is received by one or more photo-detectors;
 - a driving device for reciprocally moving ~~said article and said~~ the light projecting device and photo-sensor device relative to ~~each other~~ the article in a second direction perpendicular to the ~~said~~ first direction;
 - a shifting device for shifting the said photo-sensor device in the said first direction into at least first and second positions which are mutually separated by a distance smaller than a pitch at which the said photo-detectors are arranged in array;
 - a control device for controlling the said driving device and shifting device such that when the ~~said article and~~ light projecting device and photo-sensor device are moved by the ~~said~~ driving device in a forward direction, the said photo-sensor device is in the ~~said~~ first position and when the ~~said article and~~ light projecting device and photo-sensor device are moved by the said driving device in a backward direction, the ~~said~~ photo-sensor device is in the ~~said~~ second position; and
 - a signal processing device for processing output signals generated from the ~~said~~ photo-detectors under a control of a control signal supplied from the ~~said~~ control device to measure size

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of the article with a resolution higher than the pitch at which the said photo-detectors are arranged in array.

2. (Original) The apparatus according to claim 1, wherein the photo-detectors in the photo-sensor device are arranged into a single array with the pitch L and the photo-sensor device is shifted in the second direction over a distance of $L/2$.

3. (Original) The apparatus according to claim 1, wherein the photo-detectors in the photo-sensor device are arranged into n (n is integer equal to or larger than 2) rows with the pitch L and the n rows of photo-detectors are relatively shifted in the second direction by a distance L/n , and the photo-sensor device is shifted in the second direction over a distance of $L/2n$.

4. (Previously presented) The apparatus according to claim 2, wherein the article is placed on a transparent plate and the light projecting device and the photo-sensor device are arranged on respective sides of the transparent plate.

5. (Currently amended) The apparatus according to claim 4, wherein the said transparent plate is arranged stationary and the said light projecting device and photo-sensor device are arranged movably in the first direction.

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6. (Currently amended) The apparatus according to claim 5, wherein the ~~said~~ light projecting device is provided on a lower horizontal portion of a frame and the ~~said~~ photo-sensor device is provided on an upper horizontal portion of the frame, and the ~~said~~ frame is arranged movably in the first direction.

7. (Currently amended) The apparatus according to claim 1, wherein the ~~said~~ light projecting device includes plural light emitting elements arranged in the second direction to project a substantially parallel light flux.

8. (Currently amended) The apparatus according to claim 7, wherein the number of the ~~said~~ light emitting elements is identical with that of the photo-detectors, and the light emitting elements are arranged in array to be corresponding to respective photo-detectors one by one.

9. (Original) The apparatus according to claim 8, wherein the array of the light emitting elements is shifted in the second direction together with the photo-sensor device.

10. (Previously presented) The apparatus according to claim 3, wherein the article is placed on a transparent plate and the light projecting device and the photo-sensor device are arranged on respective sides of the transparent plate.

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11. (Currently amended) The apparatus according to claim 10, wherein the said transparent plate is arranged stationary and the said light projecting device and photo-sensor device are arranged movably in the first direction.

12. (Currently amended) The apparatus according to claim 11, wherein the said light projecting device is provided on a lower horizontal portion of a frame and the said photo-sensor device is provided on an upper horizontal portion of the frame, and the said frame is arranged movably in the first direction.

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